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THEMES: SymbolTalk 2000 and Technology: Past, Present and Future

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PETER LINDSAY



Peter Lindsay and Shirley McNaughton

Eighteen Years!

It's hard to believe that it is eighteen years since the inaugural issue of *Communicating Together!* It was distributed at the Ontario Institute for Studies in Education during one of the pre-ISAAC international conferences held in Toronto. The shock when we saw the colour on the cover of the first issue, an unexpected orange, is still quite vivid! The picture on the cover of Kari Harrington and Ann Running is a happy reminder of the continuity we have had with many AAC users through the years.

From the fall of 1983 until 1991, our magazine was published by the Blissymbolics Communication Institute as a vehicle to share information about Blissymbols. In 1987, when the Easter Seal Communication Institute (ESCI) was formed, the publication broadened to provide information about other types of graphics and technology. The focus upon "*sharing the life experiences and communication accomplishments and challenges*" and an informal relationship with Blissymbols, however, remained throughout *Communicating Together's* eighteen years. Both of us are on the Board of

Directors of BCI, as is Paul Marshall. Both Paul and Nola Millin can look back to Blissymbols as their first AAC expressive language. All of the other associate editors have been involved in one way or another through the years, with the application of Blissymbols — for some through research, for others clinically or educationally.

The formal link between our magazine and BCI — as well as with ESCI, BCI's service offshoot — was severed in 1991. At that time as ESCI was closing, we were able to assume the roles of publishers and coeditors, collect a strong team of associate editors around us, and carry on the magazine for ten years.

Back in the fall of 1982, in the Inaugural Issue of *Communicating Together*, we stated the reason for our excitement as follows:

Through *Communicating Together*, we can do what we have always believed. Our support of the (Blissymbolics Communication) Institute's primary objective — to facilitate the worldwide use of Blissymbolics as an augmentative communication system — has always been within the broader framework of helping the communication of nonspeaking people. Now, our recognition that Blissymbolics is but one way (albeit a very powerful one) to assist the nonspeaking person, can be demonstrated. Our ultimate goal — as always — is the best possible communication for each nonspeaking individual.

Inaugural Issue, 1982, p. 4

And here we are today, 19 years later, still excited and wishing to repeat the

same sentiment — but recognizing that at this stage in our lives, we can best accomplish our goal in different ways. We continue to direct our energies to facilitating the worldwide use of Blissymbolics, because we still believe, of all the AAC systems that have been developed since 1982, that the language of Blissymbolics offers the best foundation for *some* AAC users to develop independent communication, language, thinking and literacy capabilities. We will be directing our efforts toward Blissymbolic's greatest challenge — the time and knowledge required by those who provide Blissymbol instruction. The adult Bliss users and Bliss alumni around the world constantly remind us that we must find a way. They are proof that the end result is worth the investment of taking time to learn the language of Bliss.

On October 20, 2001, in Toronto, we will be celebrating *Thirty Years of Bliss* in Canada. We are expecting over 100 persons to sit down to lunch together to share reminiscences and renew friendships. Following lunch, in our formal presentations, we will hear from the many contributors to Blissymbolics along the years — through presentations by representatives of our Bliss users, their family members, volunteers, supporters, as well as clinicians, teachers, researchers, technology and software developers, legal advisers, administrators and staff. Adding to our celebration will be international guests who have shared the many years of training and Blissymbolics development with us, as they supported the Bliss users in their respective countries.

Those who are participating on Oct. 20 have all embraced the many dimensions of AAC, and recognize the many components needed within the field to meet the diverse needs of AAC users. Within the broad AAC field, however, we all keep a special place for Bliss!

Beginning this century, Blissymbolics Communication International restructured its organization in order to have greater international representation on the Board of Directors and in the projects undertaken internationally. In Canada, we are about to embark on a chapter and a new project for which the Vision and Mission Statements are as follows:

Our Vision

A world in which every individual who can benefit from a comprehensive graphic language has the opportunity to learn Blissymbolics, to achieve his or her full potential.

Our Mission

Providing a people place to give learning opportunities to 'Bliss' users and their supporters, to stimulate interest and knowledge in the language of Blissymbolics, and to create an increased awareness of the accomplishments of those who are nonspeaking.

We have not changed in our resolve to make Blissymbolics available to those who can benefit from it. Nor have we moved from our goal for the "best possible communication for each nonspeaking individual". We invite you to visit the BCI website for announcements regarding a new Blissymbolics Project for the Summer of 2002 and for news of future Sharing to Learn publications.

<http://home.istar.ca/~bci>.

tiful setting, for our yearly editors' meeting. There we discussed and debated what themes would be best to cover for the upcoming year. What were the most important issues likely to be facing the AAC user in the upcoming year. The debate was vigorous, usually extremely active and always very stimulating.

We thank you and our writers for your interest and support throughout the years. We are particularly thankful to Ann Kennedy who very ably edited *Communicating Together* for many years. It has been very rewarding and satisfying for all of us and we will miss our regular "Sharing to Learn" with you.

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Shirley & Peter & the Associate Editors

Note

For those who do not have all of the back issues of Communicating Together, the original articles, within early issues, are available upon request for a payment of \$2.00 per issue, to cover mailing and handling.

SymbolTalk 2000

SHIRLEY McNAUGHTON

C2L2

In this final "SymbolTalk", I wish to introduce the term C2L2 — Communication + Cognition + Language + Literacy — as an acronym designating the developmental areas to be considered whenever symbols are being selected for an AAC user. As I serve as your guide in looking back through the SymbolTalks in past issues of *Communicating To-*

gether, I will be watching for articles about any of the four components of C2L2. In our second last issue, I warned readers that I had another "pensieve" waiting. I hope you are ready for a multitude of thoughts as we journey from the seventies to 2001.

To enrich our delving into the past, I am beginning by sharing excerpts from Blissymbol articles written prior to the fall of 1982 and the publishing of the inaugural issue of *Communicating Together*. Glimpses into the discourse we had during the seven-

ties, as Blissymbols were finding their way around the world, are included because our magazine had its beginning as an information vehicle for the Blissymbolics Communication Institute — later called Blissymbolics Communication International (BCI). In the years before *Communicating Together* began, we at BCI had many discussions about all the dimensions of C2L2 (although we didn't call them that) as we developed a way of teaching Blissymbolics, both to its direct users and to those who would be responsible for teaching

them. It is a particularly interesting activity for me at this time to look back to those beginning years, for I am also busy preparing, along with my Bliss colleagues, to celebrate the Thirtieth Anniversary of Blissymbol use as an AAC system. It is an opportune time to reflect on *then* and *now*. Hopefully, it will prove helpful to *Communicating Together* readers to compare and contrast the early AAC days with the thinking of today.

C2L2 in the Seventies

We gave a great deal of thought to grammar and syntax in those early days. Here is what our linguist, Oliver Mott, advised in 1972:

The children in the Bliss programme are in a highly unusual, if not unique, situation with regard to their acquisition of expressive language. Firstly, their primary receptive channel is auditory, while their primary expressive medium is graphic. Secondly, they are obliged to utilize a language which no one in their environment speaks fluently (the children themselves, for instance, know the location of their symbols much better than any of the adults around them), and the language itself is in its infancy and subject to constant change. The normal child is surrounded by a community of fluent speakers who offer a vast corpus of linguistic material providing regular speech patterns for the child to model his own utterances on. The Bliss children too hear a great deal of language around them, but they might only *see* a handful of symbols sentences each day, written on the blackboard or on worksheets.

*Ontario Crippled Children's Centre,
Symbol Communication Research Project,
1972-1973, pp.10-11.*

Observation:

To-day, it would seem even more important to give attention to limitations in the corpus of linguistic material available to individual AAC users. Many are integrated into classrooms where no other student uses AAC, with teachers who have little

time and sometimes limited knowledge to devote to the C2L2 needs of individual AAC students. The practice of assigning large case loads to the consulting speech-language-pathologist and giving technology training a higher priority than the student's C2L2 places C2L2 support at even greater risk.

We also thought a lot about the nature of the learning environment:

A distinction must be made between *teaching* symbols to a child and *communicating* with a child *through* symbols. It is important that a child's learning programme be planned and that responsibility for it be taken by one person; it is equally important that the child communicate through symbols with many interested and accepting persons. Initial planning by the teacher should include arrangements for helping the adults and children who relate with the child to feel confident and comfortable responding to symbols. Their role should involve enjoyable conversation with the symbol-using child, giving feed-back to him as his symbol utterances are understood and providing a model of spoken English as they relate naturally to the child. The teacher is responsible for providing the child with information regarding the potential of the symbol system. She can utilize several approaches. *Formal direct teaching* experiences can be useful in introducing the child to symbol meanings. As the child gains in symbol fluency, the model provided by *the teacher's symbol output* and the *informal learnings* which occur during conversations become more important. The on-going balance between the three approaches will be influenced by the child's previously acquired knowledge, his learning style, and his level of symbol proficiency.

1. *Symbol learning* and conversation should be enjoyable, social and at the child's interest level. If repetition is necessary, varied experiences should be planned in which the child has the opportunity to use the new symbol or skill frequently in an interesting and meaningful context.
2. Symbols provide a vehicle for communication. The value of knowing a symbol comes in its application. As soon as a child knows a symbol meaning, situations should be planned in which he can make functional use of the new symbol. This does not mean constructing symbol work assignments or devised games; it does mean planning situations in which it is important to the child to impart or gain information through using the new symbol. Feedback from the other person is essential to his learning.
3. Symbol acquisition provides the opportunity for related learnings. Clarification of concepts, increased understanding of relationships between concepts, expansion of classifications become possible as the teacher introduces learning activities in which the child can utilize newly acquired symbols to expand his knowledge and develop cognitive skills.

*Ontario Crippled Children's Centre,
Symbol Communication Research,
Teaching Guideline, 1974, p. 4.*

Observation:

The primary requirements needed are time and knowledge of the AAC user's communication system on the part of the teacher. In many integrated classrooms, this is an unrealistic expectation. Whenever educational assistants are given this responsibility, their training becomes critical.

By 1978, we had data from 153 participants in the Formative Evaluation Study (Silverman, McNaughton & Kates, 1978). We learned that there were many factors that needed to be taken into account — intellectual ability, level of receptive language, expectations with regard to functional speech, the support of those in the academic and residential environments. Individualized programs were also essential.

1. If the student will be relying primarily on Blissymbols as his lifetime means of communication, he should learn to use the system as effectively as possible. This means he will strive for as concise an output as can be functional. If, however, the student will gradually move from Blissymbols to English as his prime interpersonal communication mode, it may be more appropriate to use an expanded Blissymbol output, patterned as much as possible after English order and including more function words than would be required for pure Blissymbol statements.
2. If the student is capable of pointing, the instructor will be free to consider a wide range of factors to arrive at a decision regarding usage of extended sentence form. If however, the student's physical capability is extremely limited, the instructor will likely be strongly influenced by this restriction and will reject an extended sentence form in favour of a more telegraphic output style which efficiently

uses content units. The severely disabled student must develop an awareness that the amount of time required for his message to be transmitted will strongly influence whether or not he will be given the opportunity to communicate widely. He then must learn the degree of information which can be transmitted by one or a small number of symbols utilized within different contexts.

Handbook of Blissymbolics, 1978, Silverman, McNaughton & Kates, pp. 43-46

Observation:

The above recommendations regarding individualized syntax instruction, directed toward meeting the needs and capabilities of both communication partners, require the ongoing diagnostic teaching of C2L2. This can be difficult to achieve in integrated educational programs.

In the seventies, we were considering different output styles, different strategies, and the Bliss user having to take responsibility for successfully communicating with each different partner by using the appropriate style and strategies. The language capabilities of Blissymbolics enabled the user to modify his or her output to suit the situation. We teachers had to help our students learn to use these capabilities. Interesting discussions took place within the Newsletter that began in 1974, through the efforts of the "Symbol Co-ordination Committee", a group of professionals working with Blissymbol users in Southern Ontario. From 1976 to 1982, the Newsletter was published by the Blissymbolics Communication Foundation, the original name of Blissymbolics Communication International. Throughout the Newsletter's eight years, it was capably edited by Barbara Rush, a pioneering Blissymbol instructor in Hamilton, Ontario. Many challenging issues were raised. As you read the fol-

lowing excerpts, see if you think much has changed in the twenty-seven years since the Newsletter began.

Our biggest problem at this moment is getting the resident staff interested in and knowledgeable about symbols. So far they think it is easier to play 20 questions and not worry about independent thoughts for these students.

Caroline Prince, Atlanta, Georgia, 1974

Observation:

How fortunate is any AAC user today, who is surrounded by staff members who see the AAC user's growth in independent communication skills as the staff's mandate! And demanding training that will assist them in fulfilling this mandate!

We are all faced frequently with the problem of not having available the exact symbol needed to express a particular meaning. The necessity of limiting the number of symbols available to the child (whatever the final number may be!) is a fact of life... I look upon the teacher's responsibility as involving (1) an understanding of the capabilities of the child with whom she is relating; (2) a willingness to assume a role which presents a communication model to the child; (3) the acquisition of sufficient knowledge of the symbol system and its relationship to other modes of communication to be able to present alternate procedures to the child... We all know that children solve problems differently and that developmental level and attitude affect their manner of tackling the unknown. Developmental level we can be aware of; attitude we can influence... For some children there is a

period when symbols are needed to express a wide range of ideas, independently, with no assistance from letters or words. At this time the "combine symbol" can be very helpful to tune the "listener" in to the child's own special way of expressing an idea. While learning to become proficient in using the "combine" symbol, the child may need suggestions as to the selection of information needed. "If you do not have the symbol you want on your display, use your combine symbol and then tell me something about the thing you are thinking of."

What sort of thing is it?

What is it used for?

What happens when you use it
or see it or touch it, etc?

Where do you find it?

Who uses it?

When is it used?

What belongs with it?

The child's developmental level will determine which of the above clues are relevant to him and can be utilized by him. With a little guidance and confidence-building, communication difficulties can become challenges to overcome rather than insurmountable obstacles.

Shirley McNaughton, March, 1974

Observation:

All that is needed is a sensitive, perceptive and conscientious teacher and time!

The most important point that concerns us when planning a communication programme for the nonverbal child is how best can that child get his meaning across. Conveying meaning is what communication is all about. What I would like to discuss first is — can we convey meaning adequately without structure? ... In the normal speaking child, production of language through speech plays an important part in learning language. Children

understand some language long before they speak, but it is the speaking process that helps the child test out what he has heard and by trial and error and with the use of correct models, he develops a full understanding of the structure and meaning of language. The nonverbal child, who may have no difficulty in taking in language, cannot develop a full understanding of language and its structure because of the lack of practice in language output. ... In my opinion, the child who may be using Blissymbols for communication should be introduced to the structure of language output as early as possible, as is the normal speaking child. As soon as the child can be conditioned to look, even if he cannot yet indicate symbols, the symbols should be used by the speaker, in conjunction with speech. In this way, the child can develop an understanding of the board's use in communication.

The advantage that the Bliss board has over other types of communication boards and over sign languages is that it is the closest to spoken language in its ability to convey abstract thought and new ideas, as well as more simple, concrete communication. Its disadvantage is the time taken to communicate. However, I feel that we should develop the symbol system's potential as a language medium, to its full. This can be done by helping the children develop language as closely as possible to their peers. ... If the Bliss-using child can learn the rules of syntax and can use complete, syntactically correct utterances on the board, then he is on a level with others in his language community. He will then be independent in the area of communication. He will have the choice of using short, incomplete utterances, or more lengthy grammatically correct utterances, according to the situation. If he is

not understood he will have the skill and knowledge to modify or enlarge on what he has said. Once he has a sound knowledge of language, he will, hopefully, develop a system of communicating that is most efficient for himself. ... The learning of syntax by the Bliss using child shouldn't be so difficult if he is exposed to it consistently. Spontaneity of communication and motivation to communicate shouldn't be hindered if we react to the child in the same way as we do to the speaking child. That is, by listening and looking at what he has to say, by showing interest, by not correcting or making him say it over again, by making constructive guesses if we don't understand and, most of all, by giving him the correct model.

*Jill Bechard,
Speech-language pathologist,
Kitchener, Jan. 1976.*

Two preliminary distinctions should be kept in mind. Firstly, the model syntax and the syntax which the child is expected to use himself need not be one and the same thing. The teacher might be following the full structure and idiom of English without demanding that his symbol-student use the same fullness of expressions. Apart from "baby-talk", adults tend to use fully grammatical structures when talking to small children. But we do not expect these children already to have mastered the complexities of the language in their own speech. Secondly, we ought to identify more carefully who we have in mind in terms of sender and receiver when we are proposing any particular syntax. Either child or adult might be sender or receiver. At one end we may have a child without speech, but characterised also by a wide range of physical and intellectual abilities. At the other end might be the child's parent or teacher; it might be someone seeing the symbols for the first time; or it might be a fellow symbol-user in the next wheel-

chair. In this discussion, I am concerned with an informed adult (e.g., teacher) in the role of sender, and the child without speech in the role of receiver. I argue that English is the most appropriate model syntax to present to the C.P. population most of us are now working with.

The situation of the child who is learning to express himself through symbols presents striking differences from the normal case of a child learning to speak:

1. The symbols are graphic...
2. The size of the vocabulary is artificially limited...
3. The selection of the symbols on the display is controlled by the adults who provide it; the expansion of the child's expressive vocabulary depends not so much on his own requirements and capacity to learn as on the decisions (or whims!) of the adults governing his programme.
4. Even the child's access to his expressive language depends on how willing others around him are to let him talk — we can remove his opportunity to converse simply by removing or withholding his display.
5. The speed of output, of pointing to the symbols, is determined by the child's handicap, and perhaps also by the receiver's ability to read and interpret what he is saying, but even in the fastest case it is still very much slower than the rate of normal speech.

But the most crucial difference for our discussion has to do with the distinction between mode of expression and mode of reception... The child with symbols, unlike the normal child learning to speak, hears spoken language all around him, but he is expected to point to symbols:

receptive and expressive language therefore take completely different forms... they are exposed to very, very little symbol usage by other people... If we wish a child to develop his skill in expressing himself through symbols as rapidly and smoothly as possible, then we must offer him a model syntax in his own medium. The normal child does not learn the patterns of his language in a receptive vacuum, and we should not expect the symbol-user to either... The most appropriate form for such a syntax to take would seem to be that of the spoken language of the environment — English in an English setting, French in a French setting... The question of how the children should be expected to talk back is a matter for another debate. It would of course depend to some extent on the child's degree of physical involvement... I suspect that in general the child of normal intelligence, presented with regular, consistent and confident usage of the symbols by his teachers, etc., would come to discover for himself the style of expression which suits his own needs best.

Oliver Mott, Linguist, Jan. 1976

The syntax papers appearing in the January 1976 Newsletter (excerpts above) presented interesting perspectives as to the relationship between Blissymbolics and English. Both perspectives brought a major challenge into focus for me. In teaching Blissymbolics to the child who has the ability to fully utilize the system, the instructor must give serious consideration as to his/her model and objectives as they relate to the child's perspective for Blissymbolics

Instructors have many decisions to make when they embark upon a symbol programme. One important decision must be whether or not the child to be

taught Blissymbols has the ability to use the system fully and creatively. If the child appears to have the potential to master the system, then the instructor has the responsibility to teach the meaning-based structure of Blissymbolics with its potential for creating an infinite number of symbols. If the child lacks this ability but appears to be able to match the surface structures of English and Blissymbolics, then it is clear that the instructor will have to encourage the child to use symbols relating them closely to English order and sound. In these instances, however, Blissymbolics is being used superficially and the system's own structure and capabilities are being bypassed.

What we all aim for is the maximum for each symbol user in effective communication. This has to mean arriving at the capability of using the full potential of Blissymbolics and secondly supporting this with every strategy which can be derived and effectively used, from any other system. English will provide valuable strategies and procedures for the English-speaking child, particularly when communicating with persons not experienced in Blissymbolics. It would be too bad, however, if the full capability of Blissymbolics were overlooked in the haste to mirror English. There is much to be learned in the area of syntax for users of Blissymbolics. I hope many approaches and directions will be explored and that we will all be wiser in this area in the future.

Shirley McNaughton, March, 1976

Before leaving the seventies, there is one other article I discovered in the June 1976 Newsletter that I must share. It was called "Breaking the Barriers of Silence" and was written by Wayne Atanas, orthopaedic class teacher, Hamilton. The piece was about Paul

Marshall when he was thirteen years old.

Paul, now a thirteen-year-old, bright-eyed boy, came to my orthopaedic class from the Cerebral Palsy Centre in 1972. He lived a life full of exciting experiences on his farm with an extraordinary family who are respected and admired in the community and he tried vainly to share his vast experiences with me and his classmates. Paul was always alert and interested in all school activities and he constantly yearned to be included in all class discussions. Paul's struggle to communicate became a never ending battle which frequently ended in frustration. He could use a typewriter but his word usage was so poor that he could not express his feelings and thoughts to the satisfaction of himself and others. Picture and wordboards proved fruitless, which only left a very limited form of hand gestures and a few near-distinguishable verbal sounds as his only way of communication. It was becoming very clear that Paul would soon become a sad, frustrated emotional problem.

In the winter of 1974, the Bliss system was formally introduced to Paul and his family. After many discussions, observations and periods of deep thought, Paul's family consented to send Paul back to the Cerebral Palsy Centre in Hamilton where he was to spend one year under the very capable and well-trained hands of Mrs. Barbara Rush, the symbol teacher at the Centre. Paul's reluctance to go back to the C.P. Centre stemmed from the fact that he would have to leave his older friends at Lisgar to go back to a class of younger students at a school from which he had graduated two years before....

Paul learned his symbols extremely well and was soon sending me letters in symbols... My training consisted of reading articles and books about the Bliss system, attending Bliss demonstrations and in-service presentations and by returning letters to Paul, using sym-

bols. The letter writing exercises proved to be a most beneficial learning experience for both Paul and myself. Paul would take delight in correcting my letters and giving constructive hints and suggestions for manipulating symbols for my future letters.

Paul's training at the C.P. Centre was extremely successful. In ten months he had mastered 643 symbols and many strategies which enabled him to say almost anything. Paul returned to Lisgar School in the fall of 1975.

As Paul moved down the hall on that first day back at Lisgar, one could sense the air of self-confidence which radiated from his proud face. Teachers and students who had known Paul from his previous Lisgar days were amazed and excited to see how one small board containing many strange symbols could have such an influence on his self-confidence.

Paul's ability to communicate using his symbols has had many positive effects on his academic, emotional and social life. He carries his compact symbol board everywhere and has repeatedly acclaimed that "this is one of the greatest things to ever happen to me".

Through Blissymbols Paul is now able to communicate in all class discussions offering many good ideas and further stimulating a more detailed discussion with his very inquisitive questions. I have been constantly challenging Paul to manipulate various symbols and symbol strategies to develop many ways of expressing himself using good sentence structure. His cognitive ability displayed by such manipulations are surprising and exciting.

Wayne Atanas, Teacher, June, 1976

Observation:

Paul is now a board member for BCI, an associate editor for Communicating Together and is the web master for several websites including BCIs. He has never stopped surprising and exciting us!

These excerpts from the seventies demonstrate how the language of Blissymbolics made those of us who were involved in teaching it, very aware of the complexities of language-learning for children who required an AAC system. We were highly aware that we must consider both expressive and receptive language and the many forms they each could take.

Because Blissymbolics was itself a language, it offered the capability of a syntax other than that of the native receptive language. We had to consider the implications of a visual language that was different from the oral mode of speech. We knew that the visual-motor American Sign Language (ASL) had its own structure, different from that of speech. We were aware of the difficulties in literacy learning experienced by those with severe hearing impairments and the arguments supporting the use of Signed English in order to provide an English model to those who signed. We wanted our students to have help toward literacy from their Blissymbol use and hence felt a pull toward an English syntax model. Yet we recognized the need to take advantage of the strategies of Blissymbolics to reduce the energy and time required in pointing to the number of symbols required in order to mirror English order. We had heated debates. In the seventies, however, they focused on Blissymbols. With the growing use of picture sets such as PCS, Picsyms and Rebus in the eighties, the discussion expanded to the consideration of "mixed boards". Technology also began to enter the debate in the eighties and nineties. While we had prototype, dedicated technical aids to consider within our discussions of the seventies, the majority of the children were pointing to symbols on a manual display.

C2L2 in the Eighties

During the eighties, there were many graphic systems described in *Communicating Together* — Pics, Oakland Schools Picture Dictionary, The WRITE system, Picture Your Blissymbols, Picture Communication Symbols, Worldsign. Each was considered independently, providing information to readers regarding the capabilities of each graphic set or system. Our Blissymbol Talk section introduced new vocabulary and offered many teaching strategies.

An article in 1986, submitted by Keila Waksvik and Cathy Bridgeland from Australia, introduced the idea of using different types of symbols on the same display and taking advantage of the capabilities of each. The Blissymbols were used as classifiers and for abstract concepts, and pictures were used for specific foods and drinks (see page 9).

In 1989, the linking of Blissymbols with cognitive development was revisited through relating Blissymbol learning to Robert Gagne's model of "The Interdependence of Intellectual Skills." Attention was given to using Blissymbols to help students clarify and expand their understanding of their world — giving them a stronger cognitive base upon which to build their knowledge and from which to communicate. The following hierarchy of cognitive skills was offered:

- Problem-Solving Skills
- Rule-Learning Skills
- Concept-Learning Skills
- Classification Skills
- Identification Skills
- Discrimination Skills

Communicating Together, March 1989, p.13.
from J. Bigge, 1988. *Curriculum Based Instruction*. Mountain View, CA: Mayfield Publishing Company. p. 193.

This was followed in June, 1989, by a Blissymbol Talk that related the display developed by Keila Waksvik and Cathy Bridgeland to the development of cognitive skills. Each level of the preceding hierarchy was demonstrated through Bliss vocabulary and strategies. In September, 1989, the ways in which Blissymbols could support the transition to traditional orthography was the topic of Blissymbol Talk.

As described, Blissymbolics provides a medium for reading and writing that is easier to learn because it relates to meaning and not to sound. It also offers teaching opportunities through the use of initial consonants to refine the symbols for "man", "teacher", "friend", etc. and for thinking about words that sound the same at the beginning, the end, and in the middle. What is described is the manner in which language and cognitive development is supported while communication and literacy are being targeted in the lesson and while a transition is gradually taking place from Bliss to print.

The eighties' research that explored graphics and iconicity received attention in *Communicating Together* through an interview with George Karlan, Purdue University, in June, 1985, and a 'Perspective' by William Yovetich, University of Western Ontario, December, 1986. Both researchers cautioned against the over-interpreting or over-extending of data that appears in research publications. The eighties' research provided the field with a hierarchy of graphic systems according to their transparency and translucency and introduced a list of features that were important in deciding upon the system for each individual. Geb Verburg, September, 1985, *Communicating Together*, reflected upon the need to look beneath the surface and to consider what happens in a symbol user's head. In the December, 1985 issue, I wrote in support of considering many factors and

not being swayed by a quick solution. The message that I still give today can be found in my closing paragraph:

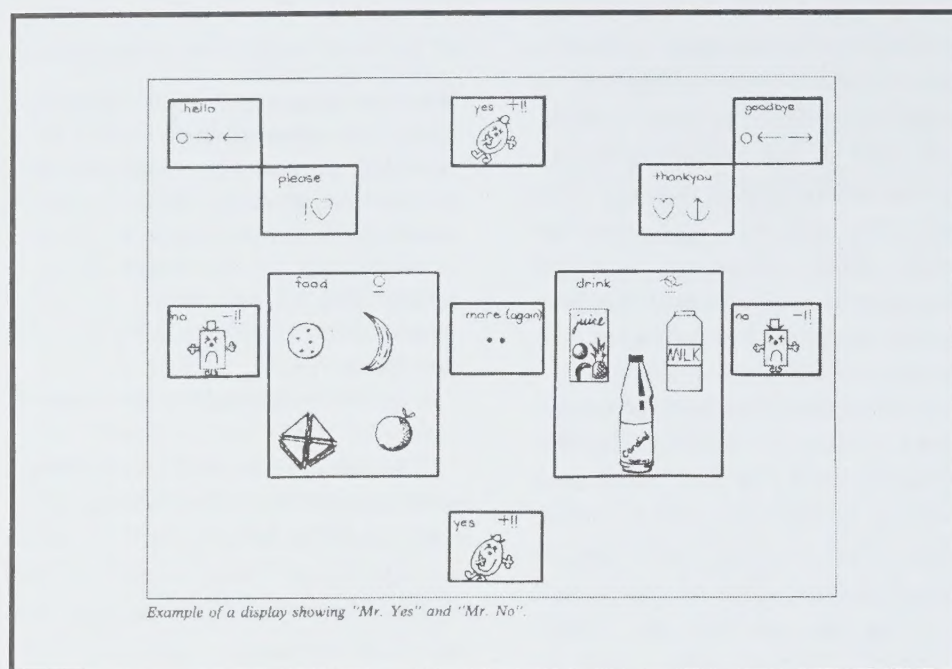
We must always remember what language and communication do for the speaking person. The augmentative communication student of the eighties should settle for nothing less. I look forward to the day when every nonspeaking person, family and instructor will demand the full way, not just the fast way!

Shirley McNaughton, 1985, page 16

The complexities of technology interfacing with symbols did not gain much attention in the seventies. With the advent of voice output in the eighties, however, the debate gained new dimensions, as a strong link was forged between technology and graphics. The Perspective written by Bruce Baker in December, 1989, heralded an era in the nineties in which technology would influence the graphics that would be used by an individual. Voice output came into its own with the refinement of the quality of synthetic speech. As Bruce Baker described it, semantic compaction with Minspeak icons provided a way to generate sentences with less physical effort and offered an alternative to the technology that used traditional orthography. More on this topic as it relates to C2L2 will follow, as we look at the next decade.

C2L2 in the Nineties

When Sharing to Learn began publishing *Communicating Together* in September, 1991, I happily assumed responsibility for the section that would be called SymbolTalk. The first article dealt with the importance of documenting the progress of individuals in their use of symbols. This challenge still remains with us in 2001. Let's hope more attention is given to this area in the years ahead and that the four components of C2L2 are included



Example of a display showing "Mr. Yes" and "Mr. No".

Display from *Communicating Together*, June, 1986, p. 8

in our study. The goal of looking carefully at symbols within SymbolTalk so that we could become "more discriminating and better equipped to compare and evaluate different symbol sets and systems" was always maintained.

Within this context, an intensive debate took place in SymbolTalk in the nineties. The debate focused on the different views of language held by the proponents of Minspeak and the supporters of Bliss. It began with my referring to the dimensions of language identified by Catherine Snow from Harvard University. According to Snow, the dimensions of lexicon; morphology; phonology; syntax; speech acts, conversation and discourse must be considered (June, 1992). I followed this article, in the September, 1992 issue, with a portrayal of a developmental pathway and the need to consider the language strands of visual processing, social interaction, auditory processing, motor performance, and symbolic processing. The language pathway involved the child gaining independence in each area and at-

taining a strong language base for the acquisition of literacy skills.

With the December, 1992 issue, Margareta Jennische (Sweden) joined the SymbolTalk discussion. It was becoming apparent that the different ways in which language was being defined were determining the debate. If language was defined as "a code with structured properties, characterized by a set of rules for producing and comprehending utterances" (quoted by Steelman, Coleman and Koppenhaver, 1992, p. 2), then Minspeak qualified. Margareta Jennische expressed concern that this definition was being used and felt that "good language development with a rich and well-structured semantic field must be independent from the Minspeak code." She also expressed concern regarding the conceptual framework being built up by the Minspeak user as they used the icon sequences.

In the March, 1993 issue, Patsy Pierce, Jane Steelman, David Koppenhaver and David Yoder, of the Carolina Literacy Center, joined the

discussion and invited all symbol system developers and instructors "to more directly link the rules for combining symbols to the properties of the AAC user's native language. In other words, make the AAC symbol combination rules those of the syntactic, semantic, and pragmatic rules of the native written and spoken language. In this way, literacy and spoken language development may be more easily acquired because the AAC user is not asked to learn a code into which his native spoken and written language must be translated for production (output)" (p. 18).

In the same issue, Eric Nyberg, of the research faculty in the School of Computer Science at Carnegie Mellon University, argued that we must consider how language fits into the complete set of cognitive skills that a person possesses. "Language development involves not only learning the 'rules' of language but also the entire set of skills related to knowledge of the world (the objects, activities, and relationships around us) and the other aspects of communication (principles of social interaction, conversation, etc.)". He presented support for the Minspeak family of programs that were designed for children and "were chosen appropriately for the particular child's cognitive skill set" (pp. 20-21).

The discussion continued in the June, 1993 issue of *Communicating Together* with Shelley Deegan joining Shirley McNaughton and Margareta Jennische. Shelley called for more research into the influence of voice output devices on language development in the preschool population and emphasized that "it is important to see Minspeak as an encoding technique rather than as a language" (p. 23). And, as a most fitting closing to our *Communicating Together* language forum, in the September, 1993 issue, Carolyn Gregory, parent of Adam, joined us. Her thoughts mirrored those of Geb Verburg, in his challenge to us all to find a way to provide all the needed vocabu-

lary to young AAC users. As Carolyn said, "I think one of the real kickers for little kids who use AAC is that the words aren't there when they need them." She argued in support of mime and body language supporting children's participation in conversations, and described how wonderful signing had been for her son.

Observation:

Different positions were taken and little closure was achieved regarding language during our year-long discussion. Nonetheless, attention was focused on language and its development. We were delighted. And we still look to research that examines the influence of voice output devices on language development. Hopefully there will be sufficient long-term studies, to enable us to compare the development of individuals using different systems at different stages of their development.

Summing Up

This look back on C2L2 began with Blissymbol publications of the seventies. It will end with excerpts from my December, 1995 SymbolTalk. In that article, I responded to the question "What is your latest thinking on Bliss?" I gave my view of the way in which Blissymbolics would be viewed in 2000-2001, particularly with respect to its role in literacy acquisition. Following a discussion of that point, I will close this article with a C2L2 challenge for today's teachers of AAC users.

I wrote the 1995 SymbolTalk during my Ph.D. studies, when I was deeply immersed in literacy-related issues. Here is some of what I believed it was important to say:

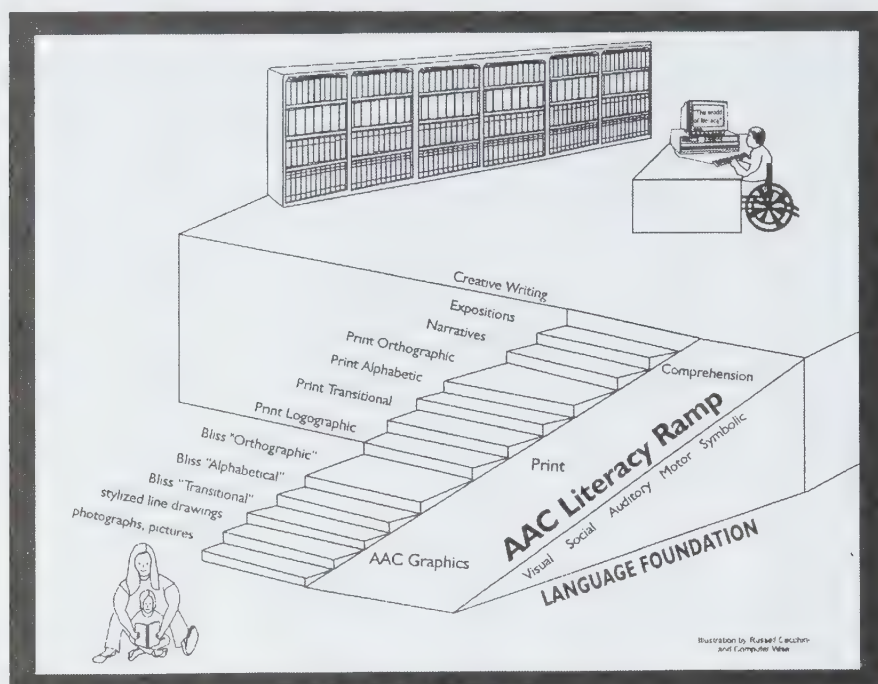
I see the value of Bliss more and more as a transition "language" between pictures and print, for all who can achieve literacy, and a long-term language for those who cannot become fluent in spelling.... My ideal program would be an ini-

tial introduction to pictures at as young an age as possible, with ongoing evaluation as to when the child is ready to transfer to pictographic Blissymbols. I would begin adding ideographic Blissymbols to their display, and I would follow this with the teaching of letter strategies — beginning with the use of initial letters, then adding other letter strategies as the child becomes aware of their role in decoding. I would add whole words to the child's communication display whenever the word is known and can contribute to effective communication.... My goal would be emphasizing the structural aspects of Bliss in the introduction of symbols and relating this to orthography whenever the child can grasp the concept. I would not worry if there was a mix of pictures, Bliss and print, so long as the structural aspects of Bliss were consistently adhered to. It is the language structure and scaffolding that Bliss provides that I believe is one of its important strengths. This means that I would want the child to be aware of the past tense symbols even if he/she preferred to use "ed" after the symbol or word. The 'combine', 'opposite meaning', 'similar to', and 'sounds like', strategies would be high on my list for mastery even while print was being worked on.

I believe we should concern ourselves with (a) the child's development of conceptual strategies to compensate for having to communicate in a cumbersome way (not having the system of choice — natural speech) and (b) the child's development of language in order to gain a metalanguage competency and a mastery of print in as many forms as possible — spelling, reading, writing. This means a strong emphasis on cognitive skills and phonological skills — always being aware that proficiency in the phonological domain is likely to be an area of difficulty. The development of both areas requires innovative teaching.

Shirley McNaughton, 1995, p. 23

At the ISAAC Biennial conference, held in Washington, August, 2000, a presentation was given by Annalu Waller (Scotland), Els Koerselman (The Netherlands), Margareta Jennische (Sweden) and Shirley McNaughton (Canada), entitled "Blissymbolics: The Emergence of a Written Language". During that presentation, the terminology now used to describe Blissymbolics in order to give recognition to its language features was introduced. While we who have worked with Blissymbolics as a communication system will always have a fond place in our hearts for its *symbols* and their *components*, we also remember that it was developed by Charles K. Bliss as a *language for international communication*. As such, it shares the primary feature of language identified by Lindblom (1990) — *Duality — the combinatorial use of discrete units at two levels of structure*. We now refer to it as the written language of Blissymbolics in which we spell Bliss-words with Bliss-characters, and write Bliss-sentences with Bliss-words. As a language, we can consider its many ways of contributing to C2L2 within individual AAC users' learning programs. For all Bliss users, it can contribute to communication, cognitive and language development. For many, it can contribute to literacy. My AAC Literacy Ramp was included in our Washington presentation and will be described in a chapter within *AAC from A to Z* edited by Lloyd and Arvidson (in press). (see figure, page 13) The ramp shows the developmental progression supported by AAC graphics beginning with the use of photographs and pictures for communication. After the *logographic*



AAC Literacy Ramp as presented at ISAAC Biennial Conference, 2000. Washington, D.C.

processing of pictures comes the following stages within Bliss-reading — *transitional* (the learner begins to look for cues within the Bliss-word through the meaning depicted by the Bliss-characters), *alphabetical* (the Bliss-words are decoded through analysing the semantic Bliss-characters), and *orthographic* (Bliss-character patterns are applied to new Bliss-words). The stages are modelled after the early literacy acquisition stages identified by Ehri (1991).

As a language, we can also appreciate the contribution of Blissymbolics to international communication through the software that supports internet communication — BlissInternet software produced in Canada, Bliss for Windows software produced in The Netherlands, and BlissPost produced in Sweden. As a written language with a closed set of characters, Blissymbolics also becomes eligible for inclusion within the Universal Character Set, of the International Standards Organization.

The Challenge

There has been a great deal of “talk” over the past three decades around the C2L2 of Blissymbolics. (It has not, however, previously been referred to quite so succinctly!) The Bliss community stretches around the world, and as the language of Blissymbolics is introduced to serve along with different native languages, many questions arise. We are forced to consider language, cognition and literacy along with communication.

This discussion has also taken place for users of Minspeak applications, as can be seen from the preceding excerpts from the *Communicating Together* language forum. I wonder, however, how much attention has been given to the C2L2 implications for picture sets? The challenge I wish to present here is for each instructor who is assessing an AAC user for a graphic representational system, to evaluate the adequacy of the graphics to support the individual’s development in all

the components of C2L2. There is need for much more question-asking as new graphics are being introduced, and much more research as individuals growing older with different AAC systems demonstrate their communication, cognitive, language and literacy capabilities or lack of them.

This looking back has not been intended as a glorification of the “old ways”. Our early days took place in a totally different environment. Synthetic speech was not available to us, nor was today’s computer technology. On the plus side, we had more time to work with children, and more time to think, plan and question what we were doing. On the negative side, we were frustrated by the lack of opportunity for those students with severe physical impairments. The rudimentary technology prototypes that were developed had to be tested on the more physically capable youngsters, as they were the only ones who could use them!

Nonetheless, some of our most physically involved students have learned to read and to move through Blissymbols to print-based computer technology. Their language, cognitive and literacy base was provided by Blissymbolics, and it is a strong one!

During the eighties and nineties, I felt as if the entire field of AAC had to take a long detour to harness and apply the technology that would enable AAC users to take their places in the wider employment, educational and social world. We have seen much accomplishment and learning take place. Now that we are experiencing the results of this innovation and the many breakthroughs that took place, I hope we can return to those underlying competencies that enable the technology to serve its full function for individuals. We can learn from the pioneers, and then build on their knowledge, incorporating it into the current capabilities provided by technology. A colleague from Europe wrote to me recently that he is observing "an increasing number of technical aids replacing communication skills.". I would argue that we need to resist this "replacement" and find ways for communication as well as the other components of C2L2 to utilize technology, not disappear in its shadow.

An area that I will be watching with keen interest is the communication that will be taking place by means of Blissymbol software for the internet. An entire new world of learning awaits us as Swedish, Dutch and English speaking Bliss users show us the international capabilities of Blissymbols. How ironic it is that the international language capabilities envisioned by Charles Bliss had to wait until thirty years of face-to-face Blissymbol communication had taken place between those with physical limitations, be-

fore his dream of Bliss international communication could occur! A study by Elizabeth Baird, University of Toronto, that is about to begin as we go to press will enable us to observe and evaluate this first communication. How exciting that it is adult Bliss users around the world who can take advantage of this technology breakthrough and show the world communication between those of different language backgrounds. While I will watch with keen interest how the communication progresses, I will be even more mindful of the language, cognitive and literacy insights to be derived from this research. There are exciting days ahead!

Poscript

I have just recently returned from a visit to Sweden to join in celebrating their "25 Years of Bliss"! When I visited the Munkhateskolan in Malmo, Boel Heister-Trygg, speech-language-pathologist, commented to me, "Here, we provide instruction and support for our AAC users in three languages — Swedish, Signing and Blissymbolics." I could not help but reflect upon our situation in North America. It is our loss that the three languages of English, Signing and Blissymbolics are but rarely offered to those among our young AAC users who could benefit from this opportunity. Fortunate are the students any where in the world, who can make these three languages their own!

§

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PETER LINDSAY

The impact of technology on augmentative and alternative communication over the last twenty years has been nothing short of spectacular! When trying to review something as massive and pervasive as technology, the biggest problem is deciding what to include and what to leave out. To make this choice, I first reviewed the articles on technology in *Communicating Together* over the past twenty years in order to identify the major issues that were discussed there. Second, I asked technologists and developers, researchers, clinicians, parents of individuals using AAC as well as AAC users themselves the following questions:

1. What do you think are the major technological breakthroughs that have occurred over the past twenty years?
2. What in your experience have been the major drawbacks in the use of technology?
3. What do you hope technology will be able to accomplish over the next twenty years?

From what I found in *Communicating Together* and the answers to the above three questions, three dominant technological breakthroughs surfaced: 1) the development of the personal microcomputer, 2) the development of computers that speak, and 3) the emergence and world-wide dissemination of telecommunications and the internet.

These then are the developments that I will discuss presenting both the major advantages as well as commenting on some of their shortcomings. In the final section, I will consider

some of the more general problems associated with the massive infusion of technology into the AAC field.

I. The Emergence of Personal Computers

The first landmark is the emergence of the "personal computer" itself. We have forgotten what a revolutionary development this was — a computer that was small enough to fit on a desk or even a wheelchair and cheap enough that the whole computer could be dedicated to a single user. Up until that point, computers were large, mysterious machines that were housed in specially built rooms and tended to by an exotic class of technical wizards. They were so precious that whole universities had to share a single computer.

When they became small, portable and cheap, suddenly they became a candidate for being a personal communication aid. The first and most popular of these personal computers in the field of AAC was without question the Apple 2 series made by Macintosh. By modern standards, it was an extremely modest machine. Its 'high-speed' memory had very limited capacity and hence could hold only the simplest of programs. All of the information had to be stored on disk or tape — "hard-drives" were not yet invented. Secondary storage in those early days was a slow sequential audio tape or, for the lucky few, a floppy disk that could hold at most a few tens of thousands of characters of information. Some early computers even had colour screens! In fact, when I first started working with students with learning disabilities in the seventies, I remember being very excited when we got a donation of an Apple 2 Plus computer with a *colour screen and a single floppy disk drive*. In those early days, that was heady stuff!

In spite of the fact that, by today's standards, these were extremely limited machines, some very useful programs were developed for them. What is more important, they generated a real excitement about the possibility of these machines helping AAC users communicate. The personal computer was perceived as a genuine breakthrough in technology that eventually might even be the salvation of those who could not speak.

During the twenty years that followed, there has been a truly unbelievably growth in the power of these machines. A single modern computer contains more computing power and storage capacity that 1000s of these earlier machines. We have subsidiary storage devices such as floppy disks and CDs that can store literally billions of pieces of text information. Moreover, current personal computers can process information in any format — pictures, sounds, videos and/or movies — at incredible speeds. Even with all this increase in power, these new machines cost much less in constant dollars than their earlier, less able cousins.

The dramatic increase in *speed* and *power* of computers, and the concurrent, equally dramatic decrease in *size* and *cost* were the necessary preconditions for the emergence of a *personal* computer that could be truly useful as a communication aid. It is hard to believe that these factors only came together in the late seventies, a mere twenty years ago. What is equally surprising is that even at their initial appearance, computers seemed to be so immensely attractive. In reading the articles in *Communicating Together* written during this early period, one is struck with the sheer joy and unbridled optimism that was associated with one's first exposure to

the microcomputer. This is captured very well by Kari Harrington and her Mom, Ruth. Kari was in the inaugural class of students who learned Blissymbolics in the early seventies as their first AAC language. At the age of eighteen, Kari got her first Apple computer. Her Mom Ruth, had this to say:

"Kari has an Apple now and, enhanced with its colour monitor, printer, telephone modem and votrax (a voice output device), it is a lusciously delicious one. . . . The development and availability of microcomputers marks the end of an old era and the beginning of a new one for our handicapped kids. Kari has had her Apple for a very short time, but each little 'byte' she takes of it reveals more and more of the unlimited potential its system offers her. . . . When Kari first drove her chair up to her magnificent array of equipment, I wondered if her use of it would justify such an expenditure. When we put her to bed well past midnight that first day, so tired she couldn't hold her head up but still sparkling with happiness, I KNEW she would!"

(Ruth Harrington, 1984: 2 - 1, Pg. 9)

Kari, Ruth's daughter, seems to feel the same way as her Mom about the possibilities of the computer. Like any eighteen-year-old girl, Kari seemed to be particularly excited about the possibility of using her new computer to talk *privately* on the telephone. For the first time, she would not need to have a parent being the mediator and hence "listening in":

"First I want to talk about the voice synthesizer and tell you what I think it will be good for. . . . The voice synthesizer is for talking on the telephone and the nicest thing about it is I can phone anyone. They don't have to have one (a voice synthesizer) too. . . . With my voice synthesizer, I will be able to say everything I want to tell her (my grandmother). I can talk to my best friend, Joy, and maybe even to some

of my friends at school. There are lots of people I would love to talk to on the phone. I'll be as bad as my sister. . . . The other thing it will be great for is to say what I want to say while my mother is working"

(Kari Harrington, 1984: 2 - 1, p. 9).

Kari was also excited by the fact that she could use her new computer to prepare messages in her first AAC language, Blissymbolics. For the first time, she would be able to write Bliss letters to her boyfriend who also used the Blissymbolics language:

"There is one thing I did not tell you yet. I have a boyfriend who talks with Blissymbols too. He has an Apple II at home but no printer yet so he uses the one at his school. I already know that you can get symbols on the computer because he writes me on his. That is why I wanted an Apple II rather than any other kind. It will write Blissymbols."

(Kari Harrington, 1984: 2 - 1 p. 9)

Other articles in these early issues are full of a similar optimism about the apparently limitless possibilities computers hold for those who cannot speak. Just three years later for example, another AAC user, Alec Kish, wrote in the "Machines, Computer and Things" section of *Communicating Together* about his views on technology. In an article called *Past, Present and Future*, Alec starts off explaining why early in his life, technology did not seem to be that necessary:

"When I was a cute, cuddly little person, between three and seven years of age, the power of speech was not that important. I could get away with grunts, motions, and a few words to indicate my needs. . . . Years went by. Many types of communication devices came onto the market and were evaluated by my speech therapist."

(Alec Kish, 1987, 5-4, p. 13)

Although many different types of devices appeared on the market, for one reason or another none of them seemed suitable. It wasn't until his sophomore year in high school that Alec was introduced to a Speech PAC using LOLEC or logical letter coding for access. After a bit of a rocky start, Alec came to the conclusion:

"The SpeechPAC is a joy to work with. For me, the Adaptive Communication System's SpeechPAC has been great help — in doing homework, indispensable; as an augmentative speech device, valuable; as a portable computer, irreplaceable. In the past, it has taught me much. In the present it teaches me everyday. In the future, it will teach me much, much more."

(Alec Kish; 1987, 5 - 4; p. 20)

Did these small wonders live up to their early promise? Let us skip forward some twenty years to see what happened. First, Kari clearly continued to make full use of computers in all kinds of ways. She graduated from Blissymbolics to print as her primary language of communication output. This of course opened up many new and exciting avenues both for her computer use and in other aspects of her life. She served as an associate editor for *Communicating Together* for many years and her ability to use computers during this period was essential for this activity as well. Eventually, Kari became intrigued by the possibilities of the internet, got an account and used it to communicate via e-mail, to keep track of old friends and make many new ones. She also used it to help her in her successful search for her birth family. Currently, one of the possessions she is most proud of is a brand new laptop computer given to her by her brand new grandfather in her newly found birth family.

Others have expressed similar reactions. Nola Millin, another associate editor of *Communicating To-*

gether, wrote the following in an issue of *Communicating Together* that was devoted to the theme of technology, edited by Robert Haaf. It is a particularly good issue to review for its many insights into technology and AAC. In terms of Nola's article, note how skeptical she was about the value of technology at the start. She begins:

"Up until the late 80's and early 90's I wasn't overly impressed with technology and didn't see how it would ever help me. I communicated quite effectively with a word board and my electric typewriter. I got a Radio Shack computer which proved to be almost useless for my needs which only added to my opinion about not needing technology. Boy, have those opinions changed!"

Nola reluctantly got involved with computers in 1991. It is interesting that, like Kari, Nola also cites the possibility of being able to use a telephone as one of the first major advantages that she saw in having a computer:

"In early 1991, I was willing to accept the fact that I needed to get a computer, which has proven to be the best move I ever made. . . . Receiving the phone communicator began a great relationship with Tracy Shepherd (Tracy is Nola's speech-language pathologist and a friend of Nola and also an associate editor of *Communicating Together*). Finally I was getting technology that seemed to be working for me.

So what's the point of all this? Well, number one, I am here to say that technology does change a person's life *but* the individual needs to want this change. And most importantly, *proper support is a major factor* (italics added) For me, technology has made a huge difference. The biggest part of the success has been the support I have gotten. As I said, this support has come from both clinicians and friends. . . . For a number of AAC users, technology will probably enhance their lives like it has mine. It will cause great frustra-

tions and even become a nightmare at times, but for me, it has been worth it. I wouldn't go back to the days of my electric typewriter and I'll only trade in my computer for a better one. I'm hooked on computers, the Internet, e-mail, and all they offer me (including the grief!). My world has indeed opened up because of computers."

(Nola Millin; 1997, 14-4, p. 22)

When all is said and done then, it is clear that Nola would simply not be able to do the things she does without her personal computer and its attachments. It has been a necessary tool for many of her activities. For example, Nola has served for a number of years as an associate editor of *Communicating Together*. She edits her church's newsletter. She is a motivational speaker using the voice output capability of her computer. She is taking advanced courses in disability and technology. In short, Nola is a clear case of an AAC user who is able to exploit the power of the computer to enhance her communications capabilities and her opportunities to engage in activities that she enjoys. Ultimately, for Nola, her computer has become an indispensable part of her social, educational and work life.

Paul Marshall is another excellent example of a nonspeaking individual who has harnessed and used productively the power of modern computers to enhance his quality of life. When reading Paul's testimony, consider the extent to which Paul's degree of independence depends critically on his access to technology, particularly the internet:

"My life's work depends on technology. I maintain four different websites and am always sending/receiving e-mail messages. My life and lifestyles would be extremely different without my technical equipment."

(Paul Marshall; 1999, 16-2, p. 23.)

These individuals would not now give up their computer-based com-

munication technology for anything. This is not to say that they have never experienced the seemingly endless difficulties that accompany one's introduction to technology. In spite of it however, they have persevered. Eventually they have reached the point where their computer systems function reliably and smoothly most of the time, where the advantages clearly outweigh the disadvantages. In fact most people I know, whether disabled or not, have a love-hate relationship with their computers. This is very eloquently expressed by Miriam Running, the parent of a nonspeaking young woman, Ann. After reciting a litany of problems associated with getting started with technology, Miriam turns to the positive side:

"The greatest advantages (of technology) to Ann (Running) have been (1) her ability to work *on her own* once set up on her equipment. She can write expressing her feelings and longings. She can complete work assigned in class. She can request assistance. The second huge advantage is the effect that her ability to use the computer has on other people's appreciation of her as a person."

(Miriam Running; July, 2001)

The development of small, powerful personal computers then was met with great anticipation and excitement. Moreover, it provided the technological basis for building many powerful tools for facilitating communication in a wide variety of situations for individuals who are nonspeaking.

II Computers that Speak

The second landmark development in the last two decades for nonspeaking individuals is the emergence of computers that can talk. The rapid emergence of speech output programs for computers has been spectacular. When the speech output component is incorporated into a portable

computer often with an alternative graphic system and a simplified means of accessing the vocabulary, it becomes a Voice Output Communication Aid or VOCA.

Essentially, a VOCA allows the nonspeaking individual to create messages that he or she wants to communicate, then have the computer speak those messages. In the 1983 Winter issue of *Communicating Together*, Patricia Fitzpatrick captured some of the excitement of the early work being done in speech production by computer. It was reported at the *Second International Conference on Non-Speech Communication* in Toronto in 1982. At that time, Sheri Hunnicutt and her group at the Royal Institute of Technology in Stockholm, Sweden, were doing particularly advanced work. At the conference, Sheri described *Blisstalk*, an electronic Blissboard with up to 500 symbols. The user could select a symbol and ask the device to either speak it or to print it or to do both. In the first version, the speech output could be in Swedish or English. French was subsequently added as a third possible language. Eventually, the system grew to become *Multivoice*, a voice output system with multi-linguistic capabilities.

At that same session, another pioneer in the AAC field, John Eulenberg, focused on the characteristics of the interface by which the user accesses a VOCA. John argued for the importance of considering linguistic knowledge in addition to technological knowledge in designing intelligent interfaces for speech-output devices. He described a system he called SAL (Semantically Accessible Language) that was developed at the Artificial Language Laboratories at Michigan State University. SAL could produce synthetic speech and/or print. Furthermore, the complexities of the interface could be adjusted to match the cognitive capabilities of the user. Finally, it was portable and small enough that it could be attached to a user's wheelchair.

At this same session, Barry Romich and Bruce Baker, two other pioneers in the AAC field, did one of their first demonstrations of a new system called *Minspeak*TM. In addition to its speech output capability and its small size, *Minspeak*TM used a new approach for specifying the selections the user wanted the system to speak. They called their selection system *Semantic Compaction* and demonstrated that with fewer than 50 symbols and seven keystrokes, *Minspeak*TM using *Semantic Compaction* could produce clear, spoken sentences on a wide variety of topics. Eventually *Minspeak*TM became one of the most popular and widely used AAC access systems in the world. Even in 1982, the chair of the speech output session, Richard Foulds, was enthusiastic about the future of speech output in AAC:

"Technological advances in speech synthesis are progressing so rapidly that systems are often outmoded by the time they are marketed."

(Richard Foulds reported by
Patricia Fitzpatrick, 1983, 1-1)

Using the Telephone

One of the reasons why the emergence of speech output qualifies as a landmark technological development is that it opened up a whole host of new communication opportunities for the person using AAC. For one thing, as noted in Kari Harington's quote above, computer based speech output provided the AAC user, for the first time, the opportunity for *independent access* to a widely available communication device that the rest of take for granted — the telephone. Moreover, the receiver of the message did not have to learn any new symbol system or scanning protocol or have any special devices in order to interact with the AAC user.

Being able to use a telephone has a number of important implications. For one thing, it allows you to communicate with anyone over any dis-

tance without actually having to leave home. Second, it provides an opportunity to communicate in *private*. You do not need an intermediary to pass along what you want to say. We often forget how important privacy is to us and how rare it is in the lives of most nonspeaking teenagers. Third, being able to use the telephone, provides the opportunity to be more "normal", to engage in an activity that seems to be one of the defining criteria of being a teenager in Western society.

Another AAC user, Nola Millin quoted above, has also written extensively about the importance of being able to use a phone. In Nola's case, she felt it provided an excellent tool to help her get to know her therapist better. It was also very useful for helping her to maintain contact with her extensive network of friends and aides that she needed to help her run her business. It even helped her keep her computer running.

Speaking Out in Public

In addition to allowing for phone communication, speech-output programs also allow the AAC user a way of "speaking out" in public. This can be used for making comments in a classroom or at a meeting or even for presenting a speech at a conference. Increasingly, AAC users are taking advantage of this capability. Paul Marshall, for example, frequently makes public presentations with his VOCA both at professional conferences like ISAAC and at smaller more informal workshops and meetings. Similarly Nola Millin is a frequent user of her VOCA for speaking in public. She has her own company and part of her income comes from giving motivational speeches. Nola also uses it extensively for participating in the numerous classes she attends.

Interpersonal communication

Third, a speech-output capability provides an additional medium for interpersonal interaction that probably requires the least effort on the part of the listener. In other methods of interpersonal interaction, the person interacting with the AAC user has the additional load of trying to decipher whatever alternative symbol system the AAC user is using. They also have to get used to the access method, whether it is eye gaze, or some sort of scanning protocol or perhaps manually scanning the board for the user.

Finally, many AAC users may prefer to use speech output over other methods simply because they, like society at large, think that it is the most 'natural' way to communicate.

The Quality of Speech

The appearance of speech output systems for computers raised everyone's hopes. The initial systems however had lots of problems. One of the problems was that, for some reason, they tended to sound like middle-aged Swedish men. Recall Kari Harrington's comments in her article quoted earlier. Kari noted that she would have to tell the people she phoned with her new computer that it was her, Kari Harrington speaking, not some strange foreign man. There were also problems with being able to access the symbols to be spoken fast enough to be able to carry on a continuous conversation. And the intelligibility of the speech was itself a problem. It was not good enough to stand alone and be completely understood without additional aids. It still is not.

One of the giant steps forward in the area of speech output occurred during the mid eighties. This was the development of a speech output program called DECTALK. With DECTALK, the intelligibility of computer speech improved dramatically. DECTALK was also one of the first systems to offer a reasonably broad

choice of voices. For the first time, a little girl with DECTALK could sound like a little girl if she wanted to.

Speech output programs are now both widely available and quite reasonable in cost. Their quality is getting better and better. In some cases, they come as a standard component of an operating system. One of the reasons for the rapid development in this area is that many applications for computers that speak are being developed both for mainstream users as well as for users with various kinds of disabilities.

Speech Output as a Literacy Tool

Much of the information in Western society and almost all of the information on the internet (to be discussed later) is in print form. Thus access to this information depends to a great extent on knowing how to read. This literacy requirement can present a formidable access barrier to AAC users, many of whom have very limited or no literacy skills at all. If texts can be read aloud by the computer, this could provide one way of overcoming this literacy barrier. In this regard, the illiterate student is in a similar position to the blind student: one cannot read the page because he can't see it; the other can't read the page because he can't read. Similarly speech-output programs should help both.

The possibility of using speech output programs combined with scanners and optical character recognition programs to overcome barriers in accessing print either for the illiterate or partially literate individual is very exciting. Moreover, it is not just a distant, dream for the future. It is possible right now. I recently supervised a totally blind doctoral student who did all of his 'reading' and writing for a Ph.D. thesis using a scanner to input the material into his computer, an optical character recognition program to convert the scanned image into text files and a speech output program to

read the text to him. He also used the computer to make notes which were read back to him on command. Finally, he typed in his thesis and had the computer read back what he wrote as he went along. Thus, the technology currently available is perfectly capable of providing the person who can't see as well as the person who can't read access to the massive amount of written material that one needs when doing a Ph.D. program.

The current scanning and optical character recognition (i.e. OCR) programs are quite sufficient for "reading" any texts. An additional program is needed however for an illiterate individual to be able to work on the internet. That program is called a "screen reader" and several versions have been developed specifically for blind individuals who want to navigate the internet. Screen readers scan the elements on a computer screen and speak the contents to the user. In fact, the illiterate AAC user might have some advantages over the user who cannot see. The AAC user could at least see the screen and try to react to the many picture oriented icons in terms of their probable meaning. In addition to their interpersonal communication capabilities then, speech output programs could also be valuable tools for overcoming the barriers in dealing with print both on and off the internet.

Using speech output programs to bypass the need for knowing how to read is one possible approach to overcoming the literacy barrier faced by many individuals who use AAC. For those who are capable of learning to read, this would at best be an interim approach. A much better approach would be to use the same print reading tools to help *teach* the nonspeaking individual how to read and write in traditional orthography. Since speech output programs can read back whatever a person writes, they should be a very useful tool to help the

nonspeaking individual bridge the gap between the AAC symbol system he or she is using and the written language of one's native culture.

Research has already indicated that when used properly, speech output programs can dramatically improve the writing and spelling skills of learning-disabled adolescents. They should be equally effective for AAC users. At the moment however, the tool is only available in a skeleton form. It holds promise that is waiting to be developed. Additional functions for manipulating text need to be defined and a reading curriculum based in the needs of the AAC user has to be developed. In this area then, we seem to be on the cusp between present and future technological developments. The necessary technology is available and functional right now. It awaits the ingenuity and efforts of concerned individuals to apply it to develop a program for teaching literacy to nonspeaking individuals.

Some Problems with Speech Output Programs

In spite of the tremendous progress and all of the excitement generated by speech output programs, they are still far from perfect. Current speech output programs are pretty clear, are widely available and are relatively cheap. They are still not good enough however to stand alone as a communication aid. The problem is that speech intelligibility itself is still far from perfect. For example, at a recent strategy planning session, Paul Marshall used his laptop computer with a relatively new speech output program to participate. Since Paul is fully literate, he accesses his VOCA by typing in the words he wants spoken. In most instances, when he wanted to say something, he had to repeat his comments several times before the group understood what he said. In many cases, we had to have someone read aloud the printed text that accompanied the voice output before we all fully understood the message.

Similarly, Paul also did a public presentation at a meeting in Ottawa, the capital city of Canada, at a celebration of some of the humanitarian contributions Canadians have made to the rest of the world. Paul projected the text of his message about BlissInternet on a screen concurrently with his voice output. This dramatically improved the intelligibility of what he said and greatly reduced the load on the audience in trying to follow the message from the spoken output alone.

Certainly there needs to be continued improvement in the intelligibility of computer speech. Whether we will ever reach the point where computer voices are as clear and as easy to follow as human voices is still an open question. Perhaps someday computers will be smart enough to adopt some of the tactics we use when we are not being understood such as rephrasing the message or speaking more slowly.

Good Speech Versus Good Conversation

Even if we had a perfectly intelligible voice output device, we would not necessarily expect the person using it to suddenly become a good communicator. In an article in *Communicating Together*, Patricia McCarthy, a speech-language pathologist from New Hampshire, pointed this out ten years ago. As Patricia noted, communication is much more than having an intelligible voice or the appropriate technology:

"No augmentative system yet devised, no matter how expensive or technologically advanced can come close to approximating the normal conversational communication process. . . . Speech is the effortless exchange of information among individuals across a variety of contexts. There is nothing effortless about watching an AAC user, no matter how competent, as compared to the ease of natural speech with its quick pace, easy retrieval, clarity to the listeners, and 'seemingly infinite combination of words in unique patterns'"

(Patricia McCarthy; 1990, 8-4, p. 20)

Good conversation and good communication require much more than good technology.

III Telecommunications and the Internet

The third most popular choice for a technological breakthrough that has great potential for nonspeaking individuals is the emergence of world-wide telecommunications and the internet. The extent to which the world is now interconnected via vast computer-based electronic communications networks was scarcely imaginable twenty years ago. During the late sixties and seventies, a few scientists had their first taste of electronic mail networks and the seductiveness of instant world-wide communication. The general public was almost completely unaware of the slumbering giant that was about to erupt and affect all of our lives.

Twenty years later it seems that almost every school boy and girl in North America has their own Website. Worldwide communication via e-mail is now a routine experience. Grandmothers use the internet for everything from sending e-mail to their grandchildren away at college to searching the web for travel tips to participating in chat-groups discussing health issues in older people. People are bemoaning the end of letter writing and the supposed dangers of a computer generation who seem to be totally fixated on this new stranger in their homes.

How does the nonspeaking person fit into this telecommunications revolution? Like the emergence of the personal computer, the electronic communications revolution was not motivated by a search for ways to

improve the lives of those who cannot speak. It was driven first by scientists and more recently by commercial interests. In 1999 in my discussion of "*Communicating on the Electronic Highway*", I proposed that regardless of the origin, these developments are especially important for the person who does not speak. I suggested that there were three new functions provided by the internet that would dramatically enhance the lives of nonspeaking individuals. The first was the *library* function:

"If it is not already, the internet is rapidly becoming the largest repository of information in the world. One can find information on the internet on almost any topic one has an interest in whether it is previews of the latest movies, reviews of the current best selling books, or symptoms, diagnoses and prescriptions for common as well as esoteric diseases. . . . the information is not restricted to text. It can store pictures, and video and sound bites as well as any kind of formatted text."

(Peter Lindsay; 1999, 16-2 pg. 13)

Thus the information in the world is now available at your fingertips via your computer *at home*.

The second major internet function I mentioned that had great potential for nonspeaking individuals was the *distribution* function. On the internet you can now get almost anything you want from groceries to songs to books to cars to the latest computer programs. The on-line distribution of information and things is unlimited. It has already revolutionized the record industry and now seems to be well on its way to doing the same thing for movies and books. Again, you do not have to leave home in order to access and download any material you want.

The third function that the internet has introduced is perhaps the most revolutionary and important of them all. This is the *worldwide, interpersonal communication* function. It can be carried out in a variety of ways

through e-mail or news or chat groups or through teleconferencing. All one needs to participate is a computer, an internet hook-up and a telecommunications program that can process the language the person uses whether it is text or symbols or both (see below). Given the potential payoff, the price of admission is very modest.

The possibilities the internet introduces for nonspeaking individuals then are nothing short of revolutionary. One can now truly work, play and learn from home. Mobility limitations are no longer insurmountable barriers to participating in many of the activities in which one wants to engage. The internet is helping to level the playing field so that nonspeaking individuals can participate successfully in a much broader range of education, employment and leisure-time activities.

Just like the rest of us, nonspeaking individuals who are literate are already participating in the telecommunications revolution. Paul and Kari and Nola are a few of the many individuals who routinely use e-mail and many of the other features offered by the internet.

Things get a little more complicated for those who are not print literate, who rely on one of the alternative graphic symbol systems for communication. For these individuals, there must be arrangements for sending the information related to the graphic symbols being used by the non-literate individual as well as the accompanying text.

For telecommunications to become a realistic and widely available option for nonspeaking individuals who use alternative graphic systems for communication, several things have to happen. First, the developers of the AAC technology must consider telecommunications as one of the communication options and integrate the commands necessary for exercising that option (e.g. sending and read-

ing e-mail, addressing e-mail messages, etc.) seamlessly into their AAC devices. Second, developers need to make sure that the various programs that are sending and receiving the graphic information associated with an alternative symbol system are compatible with one another. The receiving system must know what to expect — what format the graphics are in — so that they can be displayed properly. Perhaps we need an agreement on a standardized format among manufacturers so that the programs can readily communicate with one another.

This raises lots of tedious, technical problems but someone has to take them on. Probably the most important of these is ensuring the compatibility of different encoding and representational formats and communication protocols among the various telecommunications programs. These problems are slowly being worked on but a common approach has yet to be proposed, let alone adopted.

One general strategy is to send essentially a detailed point by point (i.e. bitmapped)-description of the graphic symbol along with whatever text message is supposed to accompany it. As long as the graphic is represented in one of the several standard image formats (e.g. bmp, tiff, jpeg), almost any receiving program will be able to display the symbol properly. A major shortcoming with this approach is that massive amounts of information must be sent over the telecommunications channel even for relatively small messages.

A second general strategy is to first encode each of the symbols in an AAC symbol system with a simple numeric code and send that code along with the text message. The receiving program must know the coding scheme and must look up the graphic associated with the numeric code and display it. This approach has the advantage of being very fast and efficient.

It means however that the receiving program must know the coding scheme in order to display the proper symbol.

A good choice for a numeric coding scheme that can be standardized for all AAC graphic language systems would be the international standards organization code or ISO. The ISO is a worldwide standard coding system for coding graphic languages of all types. This approach would require that the designers of symbol systems go to the trouble of getting their symbol system accepted and coded by the international ISO committee.

Attempts to do encode AAC graphic systems into the ISO standard would bring to the fore some of the fundamental differences among the various AAC systems. The ISO standard assumes that the representational system is a *language*. That is the system set consists of basic elemental units (i.e. *letters*) that can be combined in various ways to produce *words* or the meaningful concepts of the system. In addition to vocabulary, *grammar* must also be represented. These words can in turn be concatenated together to reproduce *sentences*. Obviously there would be vocabulary differences (i.e. differences in the specific set of concepts that are represented) among the various symbol sets. There are also significant differences in the extent to which various grammatical constructs are represented in particular AAC symbol systems.

How far are we from being able to provide an AAC user with a straightforward, practical communication tool that he or she can use for communication on the internet? As noted in the previous article, Elizabeth Baird is conducting a project in which she is attacking this issue directly. For her Ph.D. thesis, Elizabeth is exploring the possibility of using Blissymbolics as a common language among users

from different countries and different language backgrounds. She is setting up telecommunication links among AAC Swedish speaking Bliss users, Dutch speaking Bliss users in the Netherlands, French Speaking Bliss users in Belgium and English speaking Bliss users in Canada. The fifth group involved in the project is a group of Canadian high school students who have learned Bliss in order to participate in the project. Bliss is the language they have in common. The medium they are using for communication is the internet. Several different telecommunications programs — BlissInternet (English), Bliss for Windows (Dutch) and WinBliss (Swedish) — are being used for creating and sending the e-mail messages. This is only possible because all of these telecommunications programs are using the ISO standard for encoding Blissymbols and hence are compatible with one another.

IV. The Dark Side of Technology

It is obvious that fantastic strides have been made in developing technology to support communication by nonspeaking individuals. But it is not all light and progress. There is a dark side. In fact, whenever technology is discussed, the negative side-effects frequently seem to outweigh the positive benefits. Though there was lots of things to choose from, the shortcomings that I will discuss here fall into three general areas — the impact of technology on the clinical agenda, having to cope with constant technological innovation, and the problem of technological addiction. Each of these areas has been raised both by the contributing authors of *Communicating Together* and by workers in the field on a numerous occasions over the past two decades.

Negative Impact on the Clinical Agenda

Many people including parents, AAC users, and clinicians themselves are very concerned that technology seems to have too much influence on the clinical agenda in AAC. Clinicians are worried about having to become technology specialists working with devices rather than communication specialists working with language and communication issues. Many parents see a trip to the clinic as if it were a trip to a computer store. Often their main question is “What computer are you going to get for us this time?”

Clinicians are also finding that they are spending increasing amounts of their precious time trying to keep up with the new systems that are constantly being released. The focus of their in-service training and continuing education is on learning about the technology rather than on learning about the needs and the teaching methods most appropriate for AAC communicators.

Technology rather than language or communication issues also seem to dominate critical clinical decisions. For example, too often the particular symbol system a user gets depends more on the particular computer device the person wants rather than on a deliberate decision as to the most appropriate symbol system for a particular user. The domination of technology in clinical decision making often precludes the possibility of making a rational choice of the most appropriate symbol system to use based on a careful analysis of the needs and capabilities of the child and the capabilities and characteristics of various symbol systems.

These concerns have been heard repeatedly over the past twenty years at professional conferences, in informal seminars and in interactions with parents and clinicians as well as in the pages of *Communicating Together*. What is heard much less often are any concrete suggestions as to how we might reduce this overwhelm-

ing dominance of that technology. Perhaps recognizing and accepting it as a problem is the first step towards solving it.

Coping with Constant Change

Many users are themselves also suffering from technological overload and burn out. We seem to keep them in a constant learning cycle trying to master new pieces of equipment before they have fully learned how to use their old ones. Many AAC experts argue that a person's use of an AAC device must become completely automated before the person is able to take full advantage of the device. Prior to that point, too much of the user's cognitive resources are being spent trying to figure out how to make the device work rather than on determining what they want to say. The manufacturer's cycle within which new products are developed seems to be dangerously close to the limits of the learning capacity of many AAC users. Frequently they end up never fully mastering one machine before they are expected to learn how to use another.

This issue should be of concern for manufacturers of AAC equipment. In fact, the user's learning cycle and capabilities should be specifically considered when deciding on the manufacturer's development cycle. Moreover, new systems should only be released and considered for acquisition if they provide significant new communication capabilities and opportunities. The benefits of a new system must be unequivocally justified in terms of enhanced communication capabilities. These also must be balanced against the cost to the user of learning to use it. If we are not assured that the system being learned will significantly enhance the communication capability of the child, we have no right to expect the child to expend his or her precious energy learning it.

In order to maximize the possibility of transfer of learning across systems, the protocol or access approach for interacting with a new system should be as similar as possible to the protocol for the system already learned. The access and operating procedures for a device should be carefully designed right from the start to allow for natural growth in capabilities as the child matures. At the very least, one would hope that the maturing individual would not be forced to have to change to a completely new system and hence lose hard-won capabilities that had to be painfully mastered.



One view of the joys of technology

Technological Addiction

The final concern with technology is one of addiction. Our response to the siren call of technology is at times strikingly similar to that of an addict. Moreover we seem to be able to be addicted to almost any kind of technological device no matter how primitive or humble it is. The device does not have to be sophisticated or even to have fancy features in order to enchant and entrap us.

The addictive quality of technology is well illustrated in the following quote. In her comments, Miriam Running described a situation with her daughter and a very modest piece of technology — an electric typewriter.

There is no doubt that Miriam is speaking on behalf of many parents:

“When I look back at the technology Ann has used I am struck by the sheer number of different devices that she was offered. Many of them were experimental — thus untested. Each new device came with an unrealistic dose of enthusiasm and hope that this would be the answer to her needs.

Many hours were spent both by Ann and her therapists and technicians with little success. I always wished that someone would get some of the bugs ironed out before Ann had to try them. Using her board was certainly efficient, but it became increasingly important for her to work on her own.

One time, one of her therapists was having her try a typewriter with a key guard and a head pointer. The therapist allowed us to bring it home in the summer so she used it for a few weeks. The struggle for Ann to use this device was Herculean and the result of her work was about one accurate word per session. It was agonizing for me to watch her. However, came the day when suddenly the therapist got in trouble for allowing us to have the machine for so long and she had to come and pick it up. Ann sobbed for hours and was inconsolable!”

(Miriam Running, July 2001)

What a compelling illustration of the addictive power of ‘technology’, no matter how modest. Even a technology as mundane and difficult to use for a profoundly physically disabled young woman as a typewriter can create remarkable devotion! The fact that Ann would spend hours trying to produce the simplest of messages and sobbed when it was taken from her simply boggles the mind!

We all bemoan the dominance of technology and the disproportionate amount of resources and time we let it consume in our lives. But we carry on as usual. We are still thrilled to see the next version of

the next fancy gadget. We still want to be the first in line to get a demonstration of what the latest piece of technology can do.

V. Conclusions

When all is said and done, the past twenty years have been an enormously exciting period for technological growth and development. The developments have been nothing short of miraculous!

We must be thankful to the pioneers of manufacturing who set up risky enterprises and took a gamble on developing technology that they knew would be used by only a very small population of people. We must be thankful for the parents and AAC users for their patience and unfailing optimism and for their willingness to continue to try out new ideas that allowed development to continue. We must be thankful to the clinicians in the field for their perseverance in

the face of uncertainty and for their willingness to work far beyond normal working hours in the hopes that what they learn may someday benefit their clients. The effort has been truly collaborative and has crossed many disciplines. There have been remarkable successes and just as remarkable failures. We all however must keep trying to solve the problems so that technology will continue to grow and enhance the quality of life of those who are not able to speak. §

Sharing to Learn: Planning Sessions of the Associate Editors Through the Years

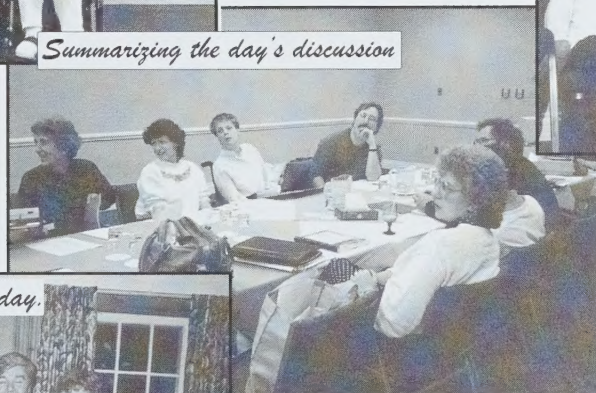
Our first formal portrait.



A formal portrait for posterity



Summarizing the day's discussion



Feeling great after a productive day.



*Celebrating a hard day's work.
(the food was great!)*



*Hard at work, discussing
possible themes.*



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Cover:

The cover shows Ann Running and Kari Harrington having a conversation. Ann is visiting Kari at Participation House in Markham Ontario where Kari lives. These same two women were on the cover of the

inaugural issue of *Communicating Together* nineteen years ago. The insert shows the cover of the inaugural issue.

For the past nineteen years, the publishers have offered *Communicating Together* as a vehicle for editors, associate editors and contributing authors to present their perspectives on augmentative and alternative communication. The views expressed however were not necessarily those of the publishers. The human interest, the dedication to consumer involvement and the international perspective were and still are priorities for the publishers.

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